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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/421,434	10/19/99	ASADA	35556-101228

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EXAMINER
TUGBANG, D

ART UNIT	PAPER NUMBER
3/23	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/421,434

Applicant(s)

ASADA, TAKAAKI

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 1, there is an inconsistency between the language in the preamble which recites "A method for screening..." and certain portions of the body of the claim such as "...beginning manufacturing of the piezoelectric transformer apparatus" (line 3). This inconsistency renders the scope of the claim as being vague and indefinite because it is unclear if the intent is to claim either the subcombination of screening or testing of the piezoelectric transformer apparatus alone, or the combination of manufacturing and screening the piezoelectric transformer apparatus. The applicant is asked to please clarify what subject matter the claim is intended to be drawn to where the language of the preamble of the claim is to be amended to be consistent with this intent.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 6, 7, 10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by IEEE publication to Kawamura et al.

Kawamura discloses a method of screening a piezoelectric transformer comprising: connecting a load impedance to a generator (see Figures 5 and 3); applying a stress signal to the generator to vibrate the piezoelectric transformer (see Figure 7); and identifying defects of mechanical strain within the transformer.

Regarding Claims 1 and 2, insofar as understood, the limitations drawn to the steps of beginning manufacturing and completing manufacturing have not been given patentable weight since these limitations do not patentably further limit the claimed screening method.

Regarding Claim 3, the fatigue limit is read as the measurement of the strain limits (shown in Figure 9). Comparisons of the vibrational levels of the strain limits are made between the tested piezoelectric transformer and a theoretical reference piezoelectric transformer.

Regarding Claim 10, the piezoelectric transformer apparatus is considered to be inherently cooled since, after screening, the piezoelectric transformer is placed in normal atmospheric conditions.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Clawson et al 3,610,969 in view of Holroyd et al 5,004,985.

Clawson discloses a method of manufacturing a piezoelectric transformer comprising: beginning manufacturing by providing several piezoelectric plates 2, 3; connecting a load impedance to a generator (diagrams of Figures 5-7); applying a continuous sinusoidal stress signal to the actuator to vibrate the transformer (see Fig. 8); and cooling the transformer back to normal atmospheric conditions after the piezoelectric plates have been fired.

Clawson does not mention testing the piezoelectric transformer and identifying any defects within the transformer.

Holroyd teaches testing a piezoelectric transformer to identify latent defects of operability and satisfactory functioning of the transformer (see col. 1, lines 5-24). Holroyd accomplishes this testing procedure by electrically connecting the transformer assembly to a generator and testing apparatus (shown in Fig. 1). Holroyd applies a continuous burst voltage stress signal to the piezoelectric transformer (shown in Figures 2-6) to excite or vibrate the piezoelectric transformer to certain frequencies. Holroyd compares first and second stress signals to identify defects of operability of the piezoelectric transformer (see col. 4, lines 17+). Advantages of such a testing procedure provides relatively low costs, does not require an operator, and enables long term identifying or monitoring of machinery and processes such that confirmation of the piezoelectric transformer is working satisfactory (see col. 5, lines 50-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Clawson by including the testing procedure of

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Holroyd, to positively provide low cost testing and enable long term monitoring of machinery and processes such that confirmation of the piezoelectric transformer is working satisfactory.

Regarding Claims 4, 5, 7, 9, 11, 18 and 19, it would have been an obvious matter of engineering design choice to choose any desired relative values of load impedance, type of stress signal, percentage of duty ratio, or type of piezoelectric transformer. Applicant has not disclosed that the load impedance being not less than 10 X the output impedance, sinusoidal continuous wave stress signal, duty ratio of burst wave being not more than 10%, and Rosen-type piezoelectric transformer, are claimed features which solve any stated problem or are for any particular purpose, it appears that the invention would perform equally well with the relative values of load impedance, stress signal, percentage of duty ratio, and type of piezoelectric transformer taught by either Clawson et al or Holroyd et al.

Regarding Claim 12, the testing of a piezoelectric transformer having only one single plate is a conventional process, since it is held that piezoelectric transformers having only one single plate is old and notoriously well known in the electrical manufacturing arts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have alternatively tested piezoelectric transformers with either one single plate, or multiple plates, since each are conventionally well known and are considered to be art recognized equivalents of one another performing the same function.

Conclusion

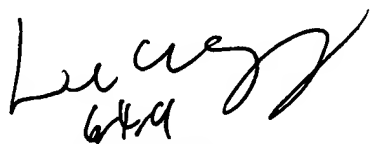
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:00 am - 4:30 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

adt
June 2, 2001


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